

CLAIMS

What is claimed is:

- 1 1. A circuit for applying a load to first and second differential signals of a
2 differential pair of signals, comprising:
3 a diode quad having first through fourth nodes;
4 a first current source coupled to the first node; and
5 a second current source coupled to the second node;
6 wherein the third and fourth nodes are adapted respectively to receive the first and
7 second differential signals of the differential pair of signals.
- 1 2. A circuit as recited in claim 1, wherein at least one of the first and second current
2 sources is programmable.
- 1 3. A circuit as recited in claim 1, wherein the first and second current sources are
2 independently programmable.
- 1 4. A circuit as recited in claim 1, wherein one programming value establishes the
2 current of both the first current source and the second current source.
- 1 5. A circuit as recited in claim 1, wherein the diode quad comprises four Schottky
2 diodes.
- 1 6. A circuit as recited in claim 1, wherein the diode quad comprises four elements,
2 each element comprising one or more diodes connected in series.
- 1 7. A circuit as recited in claim 1, wherein the diode quad comprises at least four
2 semiconductor devices each having diode characteristics.

- 1 8. A circuit as recited in claim 1, wherein the first and second current sources are
2 coupled to respective power supplies referenced to a common DC voltage.
- 1 9. A circuit as recited in claim 8, wherein the DC voltage is ground.
- 1 10. A pin electronics circuit for use in an automatic test system, comprising:
2 a differential load having first and second terminals that are connectable to nodes
3 of a unit under test, the differential load including—
4 a diode quad having a first node coupled to a first current source,
5 a second node coupled to a second current source;
6 a third node coupled to the first terminal of the differential load, and
7 a fourth node coupled to the second terminal of the differential load.
- 1 11. A pin electronics circuit as recited in claim 10, wherein the diode quad comprises
2 four Schottky diodes.
- 1 12. A pin electronics circuit as recited in claim 10, wherein the diode quad comprises
2 four elements, each element comprising one or more diodes connected in series.
- 1 13. A pin electronics circuit as recited in claim 10, wherein the diode quad comprises
2 at least four semiconductor devices each having diode characteristics.
- 1 14. A circuit as recited in claim 10, wherein the first and second current sources are
2 coupled to respective power supplies referenced to a common DC voltage.
- 1 15. A method of applying a load for testing a unit under test in an automatic test
2 system, comprising:
3 receiving a differential pair of signals, nominally SIG and SIG*, from the unit
4 under test;

5 sinking a first current from the one of SIG and SIG* having the more positive
6 voltage; and
7 sourcing a second current to the one of SIG and SIG* having the more negative
8 voltage;

1 16. A method as recited in claim 15, further comprising:
2 measuring a voltage difference between SIG and SIG*; and
3 verifying that the measured voltage substantially matches an expected voltage
4 difference between SIG and SIG*.

1 17. A method as recited in claim 16, further comprising:
2 indicating a passing result responsive to the measured voltage being within a
3 predetermined tolerance range of the expected voltage difference; and
4 indicating a failing result responsive to the measured voltage being outside the
5 predetermined tolerance range of the expected voltage.

1 18. A programmable active load for differential signals, comprising:
2 a first terminal for receiving a first voltage signal, nominally SIG, of a differential
3 signal pair;
4 a second terminal for receiving a second voltage signal, nominally SIG*, of the
5 differential signal pair; and
6 a current producing circuit, coupled to the first and second terminals, for
7 producing a current between the first and second terminals, said current having a
8 programmable value and a reversible direction, said direction being one direction when
9 SIG is greater than SIG* and the opposite direction when SIG is less than SIG*.

1 19. A programmable active load as recited in claim 18, wherein the current producing
2 circuit comprises:
3 a current switching circuit having first, second, third, and fourth nodes;
4 a first current source coupled to the first node of the current switching circuit; and

5 a second current source coupled to the second node of the current switching
6 circuit,
7 wherein the third and fourth nodes of the current switching circuit are respectively
8 coupled to the first and second terminals.

1 20. A programmable active load as recited in claim 19, wherein the current switching
2 circuit comprises a diode quad.